

## **REMARKS**

Claims 1-36 are pending in the above-identified application and have been rejected in the most recent Office Action. Claims 1, 11, 23, 30, and 34-36 have been amended herein. Applicants respectfully traverse each ground of rejection and request reconsideration and further examination of the application. Applicants respond to each ground of rejection and objection as follows.

The Applicants would like to thank the Examiner for her time and helpful comments made during the May 19, 2005 telephone interview with Applicants' attorney.

**A.     Claims 1-36 were rejected under 35 U.S.C § 103(a) as being unpatentable over Kasajima et al. (U.S. Patent No. 5,432,860).**

Kasajima et al is directed at the reduction of resonance effects arising from the ports in a speaker enclosure, and discloses an acoustic horn disposed in a sound cabinet. The system described in Kasajima is an additive system insofar as there are two acoustic sources (the horn and the vent). The Kasajima *horn itself* is at least partially composed of a porous sound-absorbing material that connects the second acoustic source (i.e., the vent) that is covered by the porous material. The porous material functions to smooth out and dampen the output of the Kasajima horn by allowing air to move therethrough at lower frequencies while mimicking a rigid barrier at high frequencies. Thus, Kasajima suppresses frequency peak and dip effects for the purpose of eliminating resonance by adding a resistor to selectively dampen ripples arising from the combination of the two acoustic sources (see Abstract and col. 5, lines 29-57).

Applicant's independent claims 1, 11, 30 and 36, as amended, all relate to sound absorbing material operationally connected to single acoustic source, i.e., a solid, nonporous, homogenous and unvented acoustic horn, wherein the addition of the sound absorbing material thereto assists the horn in placing optimal sound pressure levels at desired locations to provide an improved sound coverage field and wherein the sound absorbing material is attached to a solid horn-wall backing, such that air does not flow through the sound absorbing material. In other words, Applicants' horn is a one-piece acoustic source formed without a vent, onto which is attached a piece of sound absorbing material to direct the acoustic output of the horn to a desired location. Applicants' system uses sound absorbing material positioned against the solid and homogenous backing of the horn itself to shape the wave output as it exits the horn by draining or absorbing a portion of the acoustic output. The sound absorbing material is not necessarily porous and the horn body to which the sound absorbing material is attached is solid and nonporous, such that air cannot not pass therethrough as the sound absorbing material is positioned against the rigid and nonporous inner surface of the horn.

Kasajima et al. does not teach or suggest an unvented horn. Further, Kasajima does not teach or suggest the positioning of porous sound absorbing material against a rigid backing such that air would be prevented from flowing therethrough. Instead, Kasajima et al. teaches a the use of porous sound absorbing material over vent openings to address the resonance problem arising from the presence of two acoustic sources by dampening the frequency peak and dip. Indeed, resonance issue addressed by Kasajima only arises in systems having two acoustic sources (i.e., in vented horns) and Kasajima's

solution of using a porous material as a resistive element to filter selectively filter out the ripples is cannot function in a single acoustic source system (i.e., an unvented horn), since there is no frequency-dependent air flow through the porous material without a vent over which to position it.

To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to modify the reference or combine the reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art references must teach or suggest all of the claim limitations. MPEP § 706.02(j). The Kasijima reference does not disclose a single acoustic source or unvented horn, and in fact the functionality of the Kasajima porous sound absorbing material is inoperative without the presence of a vent. For the Kasajima system to work, air *must* pass through the porous material at the lower frequencies. Thus, *none* of the three criteria are not met by the Kasijima et al reference.

Assuming *arguendo* that the Kasijima reference satisfies the first and second criteria, the second and third criteria *cannot simultaneously be met*, since in single acoustic source systems (unvented horns) air cannot travel through the porous sound absorbing material and thus it cannot function to dampen out any peaks and dips in the output of the system. Thus, the Kasijima et al. reference cannot, either alone or in combination with other references, support an argument of obviousness regarding the instant claims. Therefore, a *prima facie* case of obviousness has not been made. The references of record do not, alone or in combination, teach or suggest the combination of elements of Applicants' claims 1, 11, 30 and 36. It is therefore respectfully submitted

that Applicant's claims 1, 11, 30 and 36 are allowable over the above-cited art. It is respectfully requested that the above rejection be withdrawn.

Claims 2-10 depend from claim 1, claims 12-22 depend from claim 11, and claims 31-33 depend from claim 30, thus respectively including all of the limitations of claims 1, 11 and 30, respectively. It is therefore respectfully submitted that claims 2-10, 12-22 and 31-33 are allowable over the references of record for at least the same reasons as set forth above regarding claims 1, 11 and 30, respectively.

Claim 23 is directed toward a method of constructing an acoustic horn assembly and includes the step of "forming an unvented acoustic horn having a mouth, a throat, and a generally truncated conical or pyramidal body with the larger cross surface area of the body defining the mouth thereof...wherein the body defines a unitary, unbroken solid member; and wherein the sound absorbing material is secured against said body such that substantially no air flows through said sound absorbing member". As noted above, the Kasijima et al reference is directed at reducing speaker enclosure resonance in vented systems and is inoperative if applied to unvented horns. Thus, the Kasijima reference does not satisfy the requirements of MPEP § 706.02(j) and thus a prima facie case of obviousness has not been made. It is therefore respectfully submitted that Applicant's claim 23 is allowable over the above-cited art. It is respectfully requested that the above rejection be withdrawn.

Claims 24-29 depend from claim 23 and thus respectively include all of the limitations of claim 23. It is therefore respectfully submitted that claims 24-29 are

allowable over the references of record for at least the same reasons as set forth above regarding claim 23.

Claim 34 is directed toward a method of providing improved loudspeaker sound coverage over large areas and includes the step of “providing two or more unvented acoustic horn assemblies for generating a sound pressure level (SPL) at a given frequency, each said acoustic horn assembly including a horn having a mouth end, a driver end and sound absorbing material disposed in close proximity to said acoustic horn, the sound absorbing material assisting the acoustic horn in placing the optimal sound pressure level (SPL) in a desired location”. As noted above, the Kasijima et al reference is directed at reducing speaker enclosure resonance in vented systems and is inoperative if applied to unvented horns. Further, the Kasijima et al reference does not disclose, teach or suggest more than one horn operated in conjunction. Moreover, the Kasijima et al reference does not disclose sound absorbing material connected to an unvented, single-source acoustic horn at all. Thus, the Kasijima reference does not satisfy any of the requirements of MPEP § 706.02(j) and thus a prima facie case of obviousness has not been made. It is therefore respectfully submitted that Applicant's claim 34 is allowable over the above-cited art. It is respectfully requested that the above rejection be withdrawn.

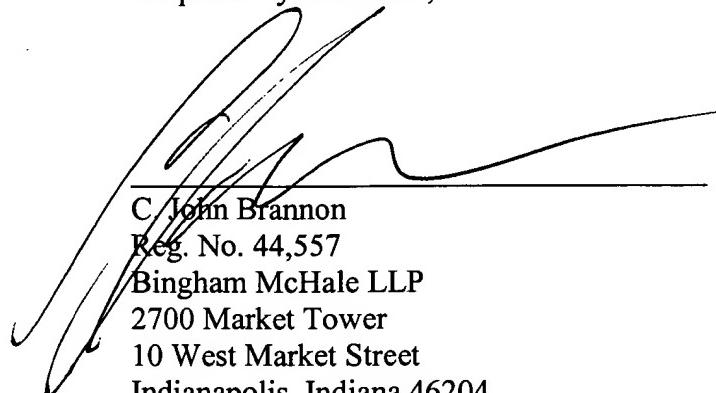
Likewise, claim 35 is directed toward a method of providing improved loudspeaker sound coverage over large areas and includes the step of “operationally coupling sound absorbing material to the surface of an unvented acoustic horn, wherein the acoustic horn blocks the flow of air through the sound absorbing material, and

wherein the acoustic horn is adapted to generate a predetermined sound pressure level (SPL) at a given frequency, said horn having a mouth end and a driver end". As noted above, the Kasijima et al reference is directed at reducing speaker enclosure resonance in vented systems and is inoperative if applied to unvented horns, i.e. if air cannot flow through the sound absorbing material. Further, the Kasijima et al reference does not disclose sound absorbing material connected to an unvented, single-source acoustic horn at all. Thus, the Kasijima reference does not satisfy any of the requirements of MPEP § 706.02(j) and thus a prima facie case of obviousness has not been made. It is therefore respectfully submitted that Applicant's claim 35 is allowable over the above-cited art. It is respectfully requested that the above rejection be withdrawn.

## CONCLUSION

Applicant respectfully requests a Notice of Allowance for pending claims 1-36. The undersigned welcomes a telephonic interview with the Examiner, if the Examiner believes that such an interview would facilitate review of this Amendment Response.

Respectfully submitted,



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